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DEC 21 2006

Application No. 10/814,288
Docket No. P21-169534M/ISI

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REMARKS

Entry of this Amendment is believed proper since no new issues are being raised which would require the Examiner's further consideration and/or search.

Claims 1-20 are presently pending in this application. Claim 1-2, 6, 8, 13-16, and 19-20 have been amended to more particularly define the claimed invention.

It is noted that the amendments to a are made only to more particularly define the invention and not for distinguishing the invention over the prior art, for narrowing the scope of the claims, or for any reason related to a statutory requirement for patentability. It is further noted that, notwithstanding any claim amendments made herein, Applicant's intent is to encompass equivalents of all claim elements, even if amended herein or later during prosecution.

Applicant gratefully acknowledges the Examiner's indication that claims 4-10 and 12-16 would be allowable if rewritten in independent form. However, Applicant submits that all of the claims are allowable.

The disclosure is objected to as being unclear regarding the description of the middle portion of the notched groove (53) comprising recess portions (55), and the lower end of the notched groove (53) comprising recess portions (56).

Applicant directs the Examiner to the Application at paragraphs [0042-0043], of the published application, detailing the a middle portion of the notched groove 53 formed with a recessed portion 55 four receiving the forwardly bent portions 62 of the stopper 60 at an intermediate mounting step. When the stopper 60 is further moved in a downward direction in the notched grooves 53, the forwardly bent portions 62 fit into the containing recess portions 56.

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[0042]...Further, a middle portion of the notched groove 53 at the outer periphery of the third diameter expanded portion 46 is formed with a recess portion 55 having a section in a V-like shape along the peripheral direction. Further, a lower end of the notched groove 53 at the outer periphery of the third diameter expanded portion 46 is formed with a containing recess portion 56 formed by a wall in a channel-like shape for containing an end portion of the stopper 60.

[0043] In mounting the stopper 60 to the socket 40, first, the stopper 60 is covered thereon from an upper side while widening the both end portions of the stopper 60 and while inserting the stopper 60 into the notched grooves 53 of the socket 40. Then, the forwardly bent portion 62 of the stopper 60 is fit to the recess portion 55 in the V-like shape at the outer periphery of the socket 40 and is tackedly held thereby. When the stopper 60 is further pressed strongly to a lower side under the state, the both end portions of the stopper 60 are slid while being widened further and the forwardly bent portions 62 are fit to the containing recess portions 56. (Emphasis added.)

Applicant also directs the Examiner to Figs. 1A-1B and to reference numbers 53, 55 and 56.

Claims 1-17 and 19-20 are objected to due to informalities and Applicant has amended the claims in a manner believed fully responsive to all points raised by the Examiner.

Claims 1-2, 11 and 17-20 stand rejected under 35 U.S.C. §102(b) as being anticipated by Hoskins, et al., U.S. Pat. No. 4,640,534.

Claim 3 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Hoskins, et al., U.S. Pat. No. 4,640,534.

These rejections are respectfully traversed in view of the following discussion.

I. APPLICANT'S CLAIMED INVENTION

The claimed invention (as defined, for example, by independent claim 1) is directed to a piping connector including, a socket in a tubular shape for attaching to an end of one pipe

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and a plug in a tubular shape for attaching to an end of another pipe. The socket comprises a pair of notched grooves at peripheral opposite sides, and the notched grooves are mounted with a stopper comprising a U-shape. The plug comprises a first taper portion, a flat portion and a second taper portion extending from a front end side and along an axial direction of the plug, and a groove for fitting the stopper being formed at a ridge portion of the second taper portion. An inner periphery of the socket is arranged with a seal ring for sealing between the inner periphery of the socket and an outer periphery of the plug in an airtight connection, and a first distance in the axial direction of the plug between a plug contacting portion of the stopper and a plug contacting portion of the seal ring, is one of equal to and less than a second distance in the axial direction of the plug between an initial stopper contacting portion of the plug and an initial seal ring contacting portion on a radius portion on the plug between the flat portion and the first taper portion.

Conventionally, piping connectors of the prior art, in a procedure of inserting the plug into the socket, before the seal ring passes a transition portion between a first taper portion to a flat portion, the diameter of the stopper is expanded while being brought into contact with a second taper portion and therefore, there poses a problem where an inserting resistance becomes extremely large. (Application at page 3, lines 5-12.)

The claimed invention (e.g., as recited in claim 1), on the other hand, includes *an inner periphery of the socket is arranged with a seal ring for sealing between the inner periphery of the socket and an outer periphery of the plug in an airtight connection, and wherein a first distance in the axial direction of the plug between a plug contacting portion of the stopper and a plug contacting portion of the seal ring, is one of equal to and less than a second distance in the axial direction of the plug between an initial stopper contacting*

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portion of the plug and an initial seal ring contacting portion on a radius portion of the plug between the flat portion and the first taper portion. This feature of the invention is important, since at a time point at which the seal ring reaches the radius portion, the stopper is not brought into contact with the second taper portion yet and therefore, at a time point at which the inserting resistance by the seal ring becomes the maximum, a resistance by the stopper is not generated yet or brought into an extremely small state. (Application at page 6, lines 5-11.)

II. THE ALLEGED PRIOR ART REJECTIONS

A. 35 U.S.C. § 102(b) Rejection over Hoskins, et al., U.S. Pat. No. 4,640,534

The Examiner alleges that Hoskins, et al., U.S. Pat. No. 4,640,534, (Hoskins), teaches the invention of claims 1-2, 11 and 17-20.

With respect to independent claims 1 and 20, Applicant submits that Hoskins does not teach or suggest, "*wherein a first distance in the axial direction of the plug between a plug contacting portion of the stopper and a plug contacting portion of the seal ring, is one of equal to and less than a second distance in the axial direction of the plug between an initial stopper contacting portion of the plug and an initial seal ring contacting portion on a radius portion on the plug between the flat portion and the first taper portion.*"

Applicant's claimed invention, as shown below, as demonstrated below in exemplary Figs. 2A-2B, claims:

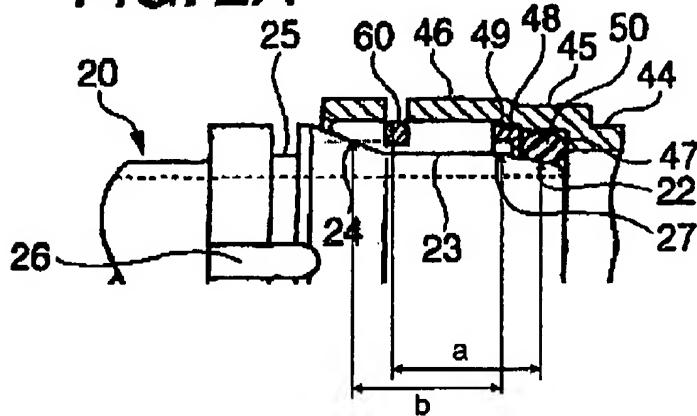
a first distance (a) in the axial direction of the plug (20) between a plug contacting portion (leftmost vertical arrow of "a") of the stopper (60) and a plug contacting portion (rightmost vertical arrow of "a") of the seal ring (50),

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is one of less than and equal to
a second distance (b) in the axial direction of the plug (20) between an initial stopper
contacting portion (leftmost vertical arrow of "b") of the plug (20) and an initial seal ring
(50) contacting portion of a radius portion (27, rightmost vertical arrow of "b") on the plug
(20) between the flat portion (23) and the first taper portion (22).

APPLICANT'S

FIG. 2A

As shown in Applicant's exemplary Fig. 2B, demonstrates when the stopper 60 comes into initial contact with the second taper portion 24 only after the seal ring make initial contact with the radius portion 27.

A first distance (a) in the axial direction of the plug (20) between a plug contacting portion (leftmost vertical arrow of "a") of the stopper (60) and a plug contacting portion (rightmost vertical arrow of "a") of the seal ring (50),

is equal to

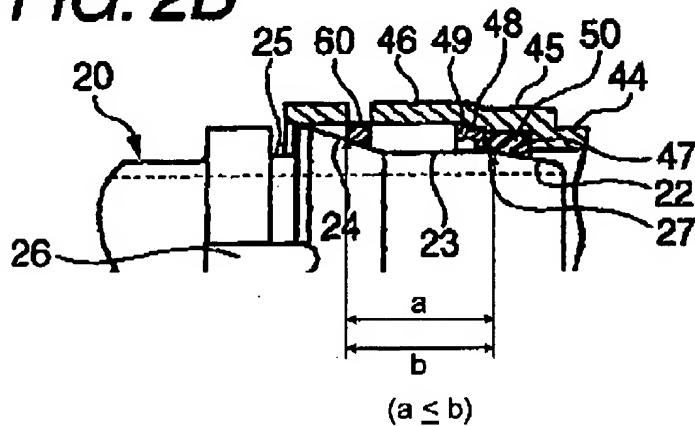
a second distance (b) in the axial direction of the plug (20) between an initial stopper contacting portion (leftmost vertical arrow of "b") of the plug (20) and an initial seal ring

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(50) contacting portion of a radius portion (27, rightmost vertical arrow of "b") on the plug
 (20) between the flat portion (23) and the first taper portion (22).

APPLICANT'S
FIG. 2B

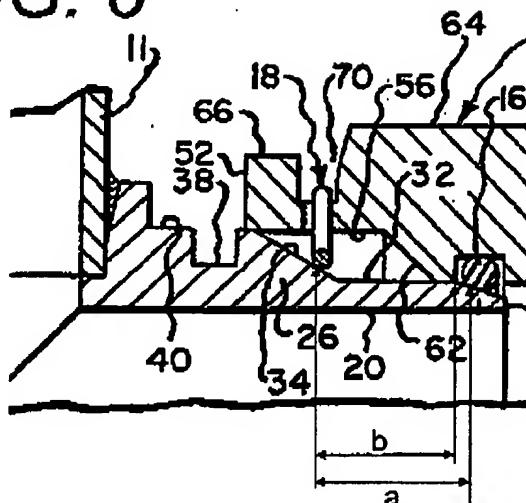


Hoskin discloses in Fig. 6, shown below, that the stopper 18 is brought into contact with the second taper portion 34, before the seal ring 16 engages the radius portion on the plug 13 between a flat portion (32) and a first taper portion (30). As shown in the annotated Fig. 6 of Hoskin, below, a first distance (a) in the axial direction of the plug (13) between a plug contacting portion (leftmost vertical arrow) of the stopper (18) and a plug contacting portion (rightmost vertical arrow) of the seal ring (16), is greater than a second distance (b) in the axial direction of the plug (13) between an initial stopper contacting portion (leftmost vertical arrow) of the plug (13) and an initial seal ring (16) contacting portion of a radius portion (vertical arrow between left and right vertical arrows) on the plug (13) between the flat portion (32) and the first taper portion (30).

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HOSKIN ET AL.

FIG. 6

(a > b)

Therefore, Hoskins fails to teach or suggest the first distance (a) is one of less than and equal to the second distance (b).

With respect to Applicant's independent claim 18, Hoskins fails to teach or suggest, "sliding said plug into said stopper such that after said seal ring reaches the radius portion of said plug, the stopper is brought into engaging contact with the second taper portion."

The Examiner states in the Final Office Action that Hoskins discloses, "sliding said plug into said stopper such that after said seal ring reaches the radius portion of said plug, the stopper is brought into engaging contact with the second taper portion," however, the Examiner fails to address where Hoskins teaches or suggests this limitation.

With respect to Applicant's arguments as illustrated above Hoskins fails to teach or suggest the stopper 18 engaging the second taper portion 34 after the seal ring 16 reaching the radius portion of the plug 20. Hoskins Fig. 6 discloses that stopper 18 engages the second taper portion 34 before the seal ring 16 reaches the radius portion of the plug 20.

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Therefore, Applicant requests that the Examiner reconsider and withdraw this rejection since the alleged prior art reference fails to teach or suggest each and every element and feature of Applicant's claimed invention.

B. 35 U.S.C. § 103(a) Rejection over Hoskins, et al., U.S. Pat. No. 4,640,534

The Examiner alleges that Hoskins, et al., U.S. Pat. No. 4,640,534, (Hoskins), makes obvious the invention of claim 3.

With respect to the rejection of Applicant's claim 3, Applicant respectfully submits that Hoskins fails to teach or suggest, "*wherein a first distance in the axial direction of the plug between a plug contacting portion of the stopper and a plug contacting portion of the seal ring, is one of equal to and less than a second distance in the axial direction of the plug between an initial stopper contacting portion of the plug and an initial seal ring contacting portion on a radius portion on the plug between the flat portion and the first taper portion,*" with respect to the arguments as presented above directed towards Applicant's independent claim 1.

Therefore, we propose to request that the Examiner reconsider and withdraw this rejection since the alleged prior art references (alone or in combination) fail to teach or suggest each and every element and feature of Applicant's claimed invention.

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III. FORMAL MATTERS AND CONCLUSION

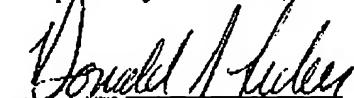
In view of the foregoing, Applicant submits that claims 1-20, all of the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Date: December 21, 2006

Respectfully Submitted,



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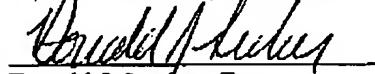
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CERTIFICATE OF TRANSMISSION

I certify that I transmitted via facsimile to (571) 273-8300 the enclosed Amendment under 37 C.F.R. § 1.116 to Examiner HEWITT, Art Unit 3679, on December 21, 2006.



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